RECLAMATION
Managing Water in the West

Draft Environmental Assessment Ephraim City Drought Resiliency Project

PRO-EA-18-015

Upper Colorado Region
Provo Area Office
Provo, Utah

U.S. Department of the Interior
Bureau of Reclamation
Provo Area Office
Provo, Utah

January 2019

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The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Draft Environmental Assessment Ephraim City Drought Resiliency Project

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1.1 Introduction

This Environmental Assessment (EA) is prepared to examine the potential environmental impacts of the Ephraim City Drought Resiliency Project (Project), proposed by Ephraim City (City) in Sanpete County, Utah. The major objective of this Project would be to improve the City's drought resiliency and increase the overall quantity and quality of water in Ephraim City. The City has experienced drought in 6 of the last 7 years. With less than average snowpack and poor water production from the mountain springs, the City has had to enact drastic water conservation management practices and strategies.

If approved, the existing city well would be rehabilitated, a new well and wellhouse constructed, pipelines constructed to introduce water into the existing drinking water system and mix with the existing well water; and create a bypass to allow for well water to be pumped to the upper pressure zone that currently has no other water supply than the springs up Ephraim Canyon. This Project would provide residents with a more reliable supply of water.

1.2 Background

Ephraim City is located approximately 100 miles south of Salt Lake City in Sanpete County at the base of the Wasatch Plateau as shown in Figure 1. The City's waterworks is a public system serving approximately 7,146 full-time residents of Ephraim and over 5,000 students enrolled at the local junior college.

Ephraim City receives potable water from two sources, mountain springs and an existing city owned well on the northwest side of town. The principal source of potable water comes from springs fed by snowmelt from the Wasatch Plateau Mountains to the east of Ephraim. These springs supply 100 percent of the City's potable water needs during most of the year and is heavily dependent on the annual snowpack and rain in the mountains. An existing well is used in emergencies, during times of drought, and periods of high demand, which is typically late summer when students have returned to the junior college. This well is located near the west edge of the City limits at 39°21'46.94" N, 111°35'46.67" W. The City's water system is used for municipal, residential, and commercial purposes. It currently consists of six storage tanks, fourteen springs, one well, hydropower plants, and appurtenant piping infrastructure.

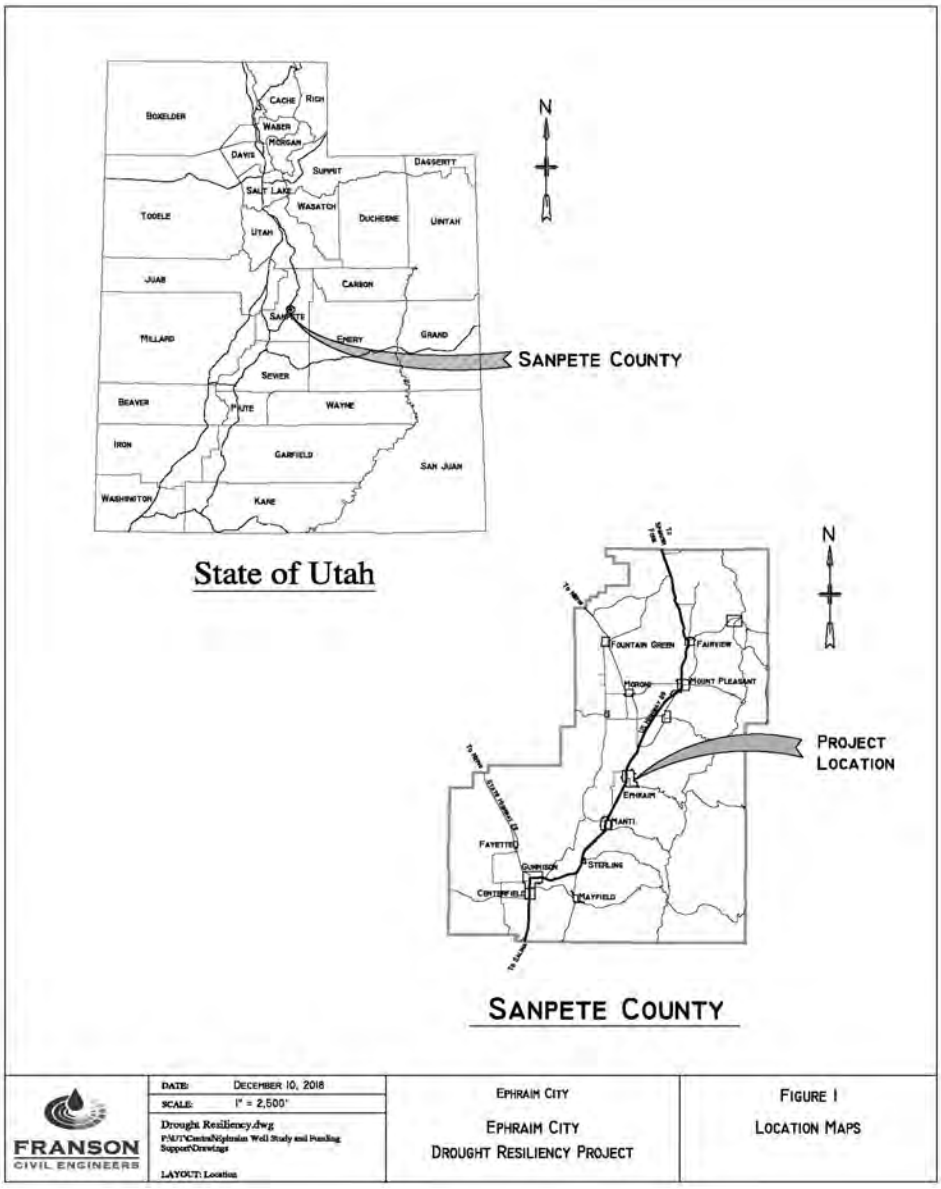


Figure - 1

Fourteen springs sites are located in Ephraim Canyon with several located across the ridge which are transferred into Ephraim Canyon via tunnel. Water collected from the springs is conveyed several miles in pipelines to the city water tanks. The water is treated just above the city before reaching the tanks. The distribution system comprises over 56 miles of pipes ranging from 4 to 14-inches in diameter. Newer sections of the system and system upgrades were constructed using PVC and HDPE pipe. There are some old ductile iron pipe and asbestos concrete pipe remaining in the system. The City has six water tanks for storage between 30,000 gallons and 1.5 million gallons. The total water storage volume in these tanks is 5.28 million gallons or 16.2 acre-feet.

Ephraim City is divided into two pressure zones. The upper pressure zone consists of the southern developments along the south edge of the City limits and

some of the east edge of town. This pressure zone is currently only served by the springs. The central zone consists of the remaining parts of the City and those near the extents of the city boundary.

Under normal climatic conditions, the springs historically have provided all the water required by the City. However, they are limited in capacity and are highly susceptible to drought conditions with flows that drop off dramatically during extended periods of drought. Mountain snowpack in 2018 was the lowest it has been since 1981. Although the snowpack was good in 2017, the spring production did not recover due to the extended period of drought prior to 2017. Additionally, the supply line to the City runs through areas that are located on steep mountain terrain susceptible to landslides and geologic movement. This past summer, the pipeline had to be repaired several times leaving the City's water supply in a precarious situation.

The City has a single backup well that was constructed in the early 1990s to use in emergencies and to provide redundancy in case the main supply line is out of service. The last 6 years have been drought years and the well has been used to supplement the mountain springs. The City has at times had to run the existing city well for extended periods of time during the months of July through October due to reduced production from the springs. In 2017, the springs and well pumped continuously barely meeting the demand in late summer.

However, the well can no longer supply water to the entire City due to fluctuating arsenic levels, lack of capacity, and not being able to serve all the different pressure zones within the City. Additionally, the pump recently failed. Observations have found that heavy pumping of the well results in rising concentrations of arsenic in the water. The backup well easily met drinking water standards for arsenic when it was drilled. However, drinking water standards have become more stringent since then by lowering the acceptable amount of arsenic in a municipal water source. The existing well sometimes exceeds the allowable Environmental Protection Agency (EPA) arsenic standards for drinking water. The combination of drought-affected springs that are piped across mountains prone to landslides, along with a single backup well that cannot meet the demands of the City by itself creates an especially precarious position for Ephraim City's water system.

1.3 Need for Action

A more reliable and cleaner water supply is needed before summer 2019 in Ephraim City to satisfy water demands and meet drought resiliency objectives for the City. In addition, the Bureau of Reclamation has a need for action. Procedural requirements of the National Environmental Policy Act (NEPA) need to be met when a Federal agency has discretion over an action. This EA evaluates the potential effects of the two alternatives described in Chapter 2 in order to determine if there would be significant impacts to the human or natural

environment, as defined by NEPA. If the EA does not identify significant impacts associated with one of the alternatives, then a Finding of No Significant Impact (FONSI) would be issued by the Reclamation. The FONSI would identify the alternative that was chosen based on the analysis in this EA. If significant impacts are identified from the analysis in this EA, an Environmental Impact Statement would be necessary prior to implementation of one of the alternatives. This Project is subject to NEPA due to partial funding through Reclamation's WaterSMART program.

1.4 Public Scoping and Involvement

A public scoping meeting will be held on January 29, 2019, from 6-7:30 p.m. at the Ephraim City Hall to discuss the Project, and answer questions about the EA. A comment period is being conducted from January 14, 2019, to February 4, 2019.

1.5 Permits, Licenses, and Authorizations

Implementation of the Proposed Action may require a number of authorizations or permits from State and Federal agencies. The City would be responsible for obtaining all permits, licenses, and authorizations required for the Project. Potential authorizations or permits may include those listed in Table 1-1.

Table 1-1
Permits and Authorizations

Agency/Department	Purpose
Utah State Historic Preservation Office	Consultation pursuant to Section 106 of the National Historic Preservation Act (NHPA), 16 USC 470.
Utah Department of Environmental Quality, Division of Water Quality (DWQ)	A Utah Pollutant Discharge Elimination System (UPDES) permit for construction activities may be required to help prevent erosion and ensure sediment controls are utilized to minimize construction impacts.

1.6 Scope of Analysis

Project analysis in the EA includes temporary impacts from construction activities and permanent impacts as a result of drilling a well and constructing pipelines. The Project occurs in Sanpete County, Utah as depicted in Figure 1.

Chapter 2 Alternatives

2.1 Introduction

This chapter describes the features of the No Action and Proposed Action Alternatives and presents a comparative analysis. It includes a description of each alternative considered. This section also presents the alternatives in comparative form, defining the differences between each alternative.

2.2 No Action

Under the No Action Alternative, no improvements would be made to the City's water system. The precarious water situation would continue and the threat of no water supply for the City would be a never-ending issue. Figure 2 shows the existing water system.

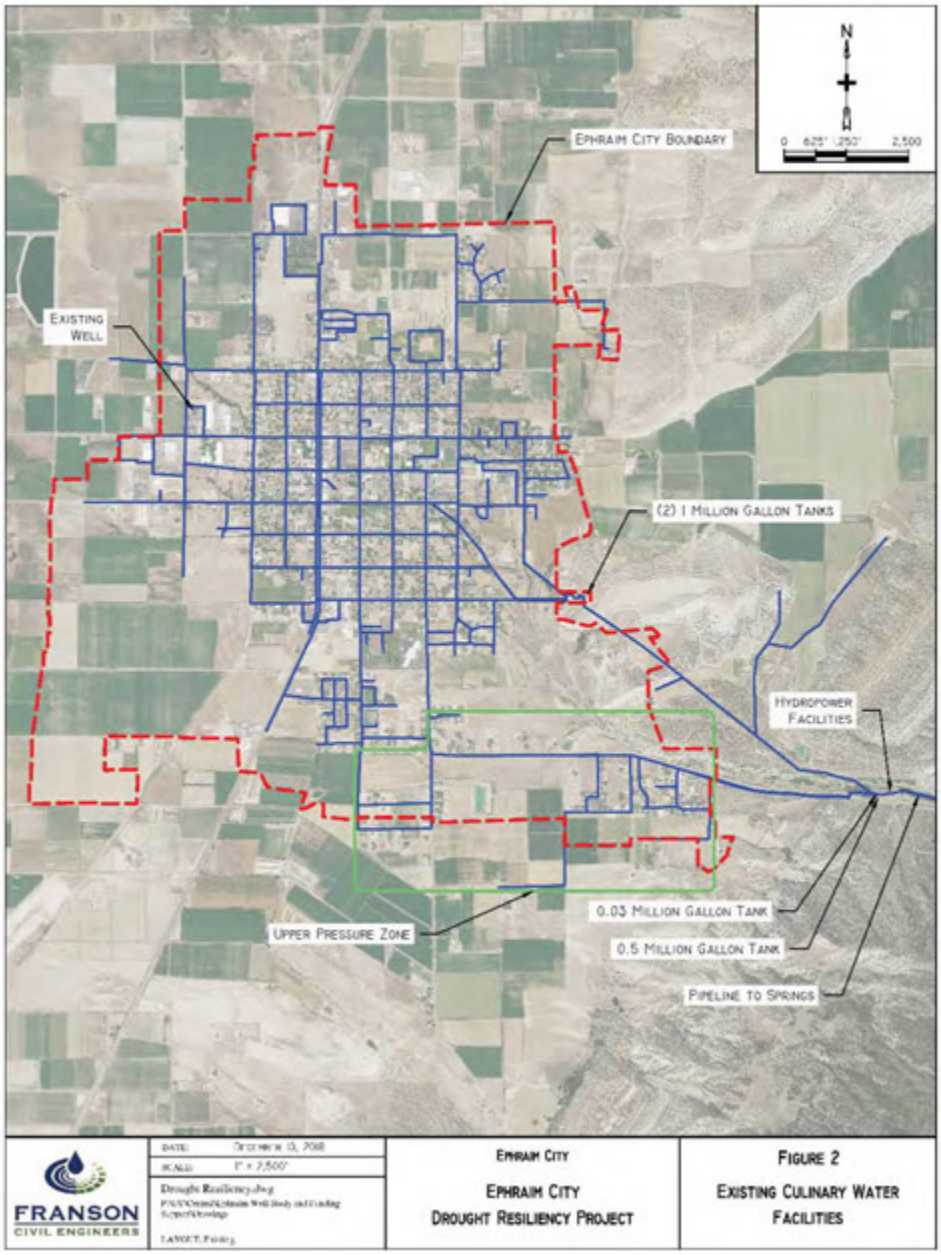


Figure - 2

2.3 Proposed Action (Preferred)

In order to improve the City's water supply and make it more resilient to drought and to address the concentration of arsenic in the existing well, the proposed Project has been created and is the Preferred Alternative. It would include the following components, which are shown on Figure 3:

1. Construct a New Well for an Additional Water Source.

The City currently has two sources of water, a well that occasionally exceeds arsenic limits and springs on the mountain that are very sensitive to drought conditions. This third source would be a well drilled southwest of the city in an aquifer that does not have arsenic issues. It would be located in a valley fill bounded by bedrock, the San Pitch Mountains to the west, and the Wasatch Plateau to the east. A Preliminary Evaluation Report was prepared in May 2018 and is included in Appendix A.

- Design Component: Design a well, pump, piping, and other appurtenances to allow the proposed well to supply the City's water system with up to 1,200 gallons per minute (gpm).

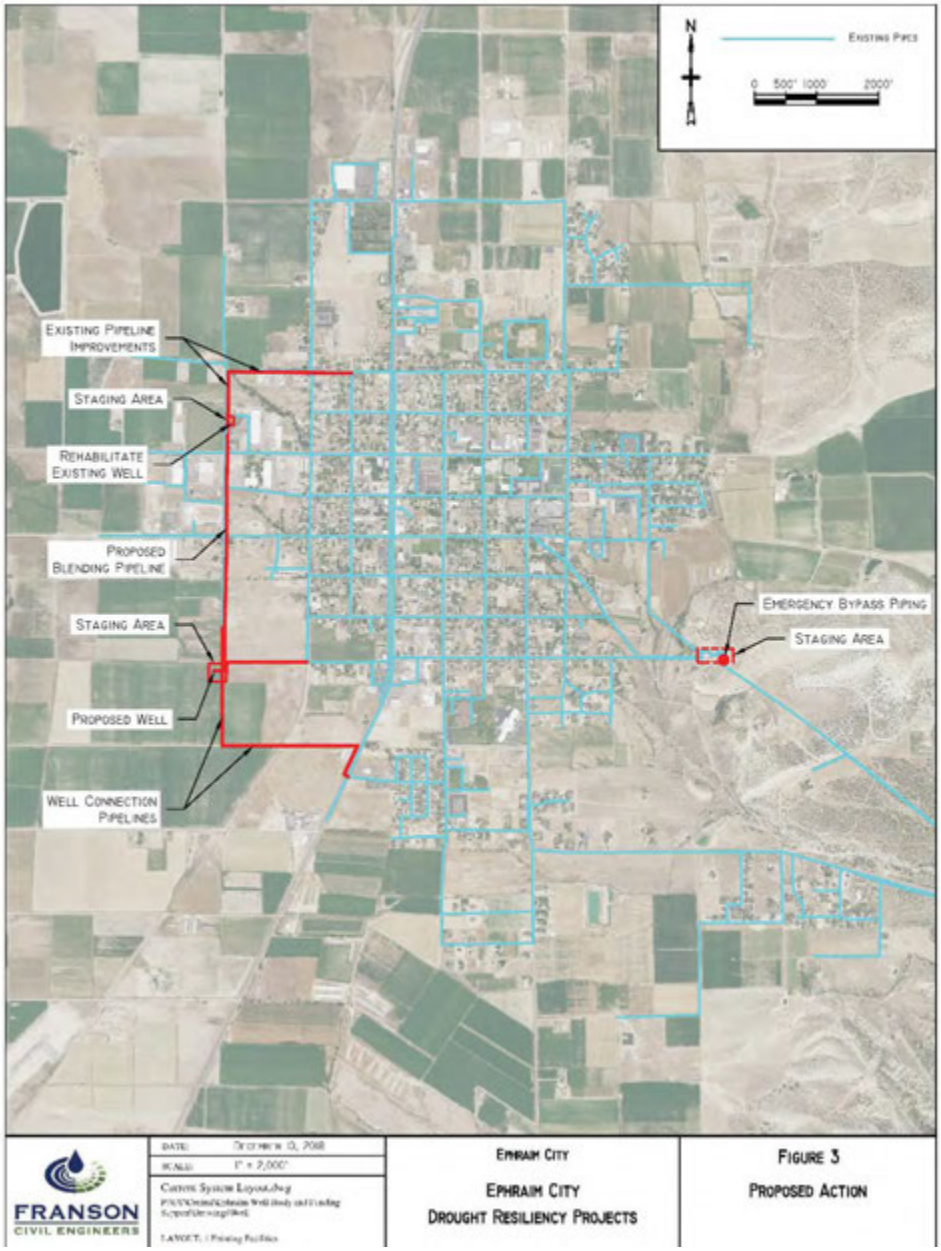


Figure - 3

2. Rehabilitate the Existing City Well.

   Other than the issue with arsenic, the current well has a much greater capacity than is currently being pumped. The well would be cleaned and re-developed to increase production. The old pump would be replaced with a higher capacity pump. The increased production from the well would exceed the capacity of the pipelines connecting the well to the drinking water system. Some of the existing pipes would need to be

replaced and some new pipelines would need to be installed. Some improvements to the well house may also be needed.

- Design Component: Design well rehabilitation approach includes design a new pump, piping, and other appurtenances for existing well to supply up to 1,500 gpm to the City's water system.

3. Pipeline Improvements.

   The pipeline improvements would increase the pipe size of some existing pipelines and add valves to allow for the existing well's greater capacity to be utilized. In addition, to counter the rising arsenic levels anticipated with the higher flowrates, a mixing system would be designed to blend the existing well water with the supply from the proposed well. The mixing system would include valves, meters, real time arsenic monitoring, and larger diameter and higher pressure rated piping. It is anticipated that the pipe pressure rating would need to be 200 pounds per square inch (psi).

   - Design Component: Design upgrades to the system near the existing well that would be required to distribute the flow from the well to the system without exceeding pipe velocities of five cubic feet per second (cfs) in non-steel pipes.
   - Design Component: Determine the best location for mixing between the two wells.
   - Design Component: Design and size pipes, valves, and any other required appurtenances that would be necessary to adequately mix and dilute the water from the existing well with water from the proposed well to reduce the concentration of arsenic in the water supply.

4. Construct New Pipelines to Connect the Proposed Well to the Existing System.

The proposed well would need to be connected into the existing system.

- Design Component: New connections and upgrades to the system near the proposed well would be required to distribute the flow from the well to the system without exceeding pipe velocities of five cfs in non-steel pipes.

5. Reconfigure Existing Piping Near the City Tanks to Become an Emergency Bypass to Allow Pumping of Well Water to the Upper Pressure Zone;

   Currently, Ephraim City has an area of the City that can only be served by the springs in the canyon. Some piping and valves would be added to the

system near the City's main tanks that would allow a rented pump to reverse the flow direction in the pipeline, allowing well water to be pumped to the upper pressure zone if water from the canyon is lost.

6. Add SCADA for the New Components to Integrate into the City's Existing SCADA System.

   Flow meters and operation data for the well pumps would be added to the City's existing SCADA system.

2.3.1 Rights-of-Way

Ephraim City owns the land where the proposed well and bypass structure would be constructed and the land where the existing well is located. Additionally, it has the rights-of-way and/or prescriptive easements for all pipelines with the exception of the crossing of U. S. Highway 89, which would need to be obtained from Utah Department of Transportation. The majority of construction would be adjacent to or in existing roads.

2.3.2 Road Crossings

Road crossings would occur where surface streets cross the pipeline alignment. It is anticipated the City roads would be temporarily shut down so the roadway could be cut for pipeline construction. At the intersection of 300 North and 400 West, the pipeline would be placed below the existing culvert to not disturb the channel. During periods of road closure, traffic would be routed by traffic controls and road detour signs. Following construction, disturbed roads would be repaired.

At U.S. Highway 89, the pipeline would be bored under the highway so no disturbance to traffic would occur.

2.3.3 River Crossings

There are no river crossings as part of this Project. As noted above, the existing culvert used to convey water past the intersection of 300 North and 400 West would be crossed by placing the pipeline below the culvert.

2.3.4 Construction Schedule

The Project would consist of drilling a new well and building a well house, rehabilitating the old well, constructing approximately 2.4 miles of pipeline, reconfiguring existing piping near the city tanks to create an emergency bypass to the upper pressure zone, and adding SCADA to integrate the new components into the City's existing system. The main focus would be to ensure that the City is never without an alternate water source in the event that the water from the springs is lost. Therefore, the highest priority would be drilling the proposed well as soon as possible, with an anticipated start date in spring 2019. The connection pipelines and wellhouse would need to be completed before the existing well is taken offline for rehabilitation.

Once the proposed well would be put into service, the existing well would be rehabilitated and the blending system and associated pipelines would be installed. It is anticipated that the pipelines would be constructed in spring/summer. All construction would be completed in 2019. The milestones are in Table 2-1.

Table 2-1
Project Milestones

Milestone/Task	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19
Construction of New Well							
Construction of Connection to Well							
Construction of Wellhouse							
Construction of Pipeline Improvements							
Rehabilitation of Existing Well							
SCADA for New Components							
Construction of Bypass							

2.3.5 New Well Construction

The Utah Division of Drinking Water (DDW) has specific standards set for the construction and use of groundwater wells supplying culinary water. The standards are discussed at length in the Water Well Handbook produced by the State of Utah (Division of Water Rights, 2018). The regulations are presented here, in limited form, for reference. In general, the well should have the following components:

- A 100-foot (minimum) surface seal of grout from the top of the well down;
- An ANSI/NSF 61 compliant AWWA A-100 steel casing;
- A gravel pack consisting of 90 percent well-rounded silica;
- An insulated well house with HVAC;
- Appropriate power supply and emergency power;
- The top of the well protruding a minimum of 1.5 feet above the floor of the well house.

The State of Utah regulates the drilling of a well with a depth of greater than 30 feet. The well would be constructed by a current Utah Licensed Well Driller. The guidelines outlined in the Water Well Handbook would be followed.

2.3.5.1 Construction Sequence

Construction would likely occur in the following sequence:

- Mobilization of well drilling rig to drill well.
- Drill well and determine soil layers.

- Determine well casing requirements and install well casing and screen.
- Install gravel/filter pack.
- Install surface seals.
- Develop well.
- Test well for capacity.
- Determine capacity and placement of the pump.
- Build wellhouse and connection pipelines.
- Install pump and necessary components.
- Introduce water into system.

2.3.6 Rehabilitate the Existing City Well

2.3.6.1 Construction Sequence

Construction would likely occur in the following sequence:

- Remove pump.
- Clean the well casing using a wire brush.
- Reopen some perforations that have become blocked.
- Any other necessary rehabilitation issues.
- Develop well.
- Pump test the well.
- Determine capacity and placement of the pump.
- Install new pump.
- Reintroduce well water into system.

2.3.7 Pipeline and Bypass Construction Procedures

2.3.7.1 Construction Sequence

Construction would likely occur in the following sequence:

- Excavate and grade pipeline alignment.
- Install pipeline bedding materials.
- Haul pipeline to construction sites.
- Place pipeline and connect to existing system.
- Backfill around pipeline and grade surface.
- Cleanup and restore areas disturbed by construction.
- Seed rights-of-way and disturbed areas to provide revegetation.
- Repair pavement where disturbed.

2.3.7.2 Excavate and Grade Pipeline Alignment

The pipeline alignment would be excavated and graded to provide a base for installation of the pipeline. All excess material would be disposed within the pipeline right-of-way or hauled to areas of the City where fill is needed. Much of the excavated material could be used for backfill and would be disposed in ways that blend with adjacent lands. Bedding material would be hauled to the Project

site and placed in the bottom of the pipeline trench if native material is not acceptable for use as bedding material.

2.3.7.3 Pipeline Installation

The pipe manufacturer would transport the materials to the work site by flatbed truck and/or specially outfitted loaders. Construction equipment would place the pipeline in the prepared alignment and connect to the previously laid pipelines. Backfill would be placed at correct compaction levels around the pipeline from either material available along the alignment or imported from local off-site commercial gravel pits. Backfill would be mechanically compacted with a compactor. Air valves, control valves, drains, fittings, and relief valves would be installed at appropriate locations to ensure the proper operation of the pipeline. Spoil in work areas would be blended with existing contours to maintain local drainage patterns. All construction debris would be removed by the contractor.

2.3.7.4 Road Crossings

It is anticipated that pipeline installation at road crossings would be completed with minimal disturbance to existing structures. Backfill would be compacted all the way to the ground surface at road crossings to prevent the road surface from subsiding under repeated traffic loads during and after construction. Temporary gravel surfaces would be installed and the final asphalt and curb and gutter, where existing, would be restored by the completion of the Project. Road crossings would be restored to a condition better than or equal to existing conditions as confirmed by video footage and photographs. The U.S. Highway 89 crossing would be bored to avoid traffic impacts and damage to the road.

2.3.8 Quality Control Procedures

The contractor would ensure quality control of construction through visual inspection after backfilling and all construction work is completed. The required testing would be performed to ensure the system operates to design specifications.

2.3.9 Construction Staging Areas

Three separate proposed staging areas in the Project area were evaluated as part of the environmental process to be used for equipment staging, vehicle parking for construction personnel, and materials stockpiling. However, the pipeline alignment would be a continuous staging area for the construction crews as they construct the pipeline by preparing the alignment, laying the pipeline, backfilling, finishing grading, and restoration. The staging area by the proposed well is approximately 2 acres and coincided with the property lines of the parcel for the proposed well. The staging area by the existing well is approximately 1/3 acre and the area around the bypass structure is over 2 acres. The staging areas are shown on Figure 3.

2.3.10 Operation and Maintenance

Operation of the City's system after the Project would remain essentially unchanged. Two exceptions to this would be the blending of the existing well water with the proposed well water in the blending system along 400 West.

Valves would be used to isolate a path between the wells so that the water from the existing well is blended before being introduced into the system. Another exception would be the added flexibility with the new bypass, which would allow well water to be pumped up the existing pipeline to the upper system. During these times, operation crews would go to the bypass location site to change valves and operate the pump. This area currently can only be serviced with spring water from the canyon.

2.3.11 Standard Operating Procedures

The Project has been designed to avoid or minimize adverse impacts. Standard Operating Procedures (SOP) would be followed during Project construction and operation and maintenance (O&M) to avoid or minimize adverse impacts on people and natural resources. Chapter 3 presents the impact analysis for resources after SOP have been successfully implemented.

2.4 Alternatives Considered and Eliminated from Further Study

The following alternatives were evaluated but eliminated because they did not meet the purpose of, or need for, the Project.

2.4.1 New Water Source

The City has looked at options for new water sources to supplement their existing water supply. New springs may be able to be developed in the canyon. However, this potential water source would not provide a viable solution as the current drought conditions impact the amount of water produced by natural springs. It is not known if additional springs exist and the time to find and develop them would not provide the immediate drought relief the City needs. Therefore, this alternative does not meet the need for action.

2.4.2 Existing Irrigation Wells

Another well, the Larson Well, southwest of town was purchased by the City. It has been used for irrigation and livestock. In order for the well to contribute to the water system, it would need to be retrofitted to comply with drinking water standards and supply adequate flow to the city. Currently, the well has no surface seal, no well house, an old casing, out-of-date piping, and a weak pump. In addition, modelling indicated that even if the well were updated to meet current drinking water standards, it would not be able to supply the requisite flow to the system, as it produces only 600 gpm. To be able to supply enough flow, the well would need to be widened and reconstructed entirely. Additionally, there are potential water right issues involving third parties.

The City purchased a second irrigation well northwest of town. The well was not constructed to drinking water standards. The well is also near wastewater treatment ponds that could potentially cause a myriad of water quality issues. It is unlikely that the ponds are discharging into the aquifer; however, it is likely that regulatory requirements would prohibit use of the well for culinary purposes.

Finally, the well is completed in bedrock, which is suspected to be the source of the arsenic in the City's existing well.

2.4.3 Secondary Water System

Another alternative would be to install a secondary water system throughout the City. While the existing Larson Well could be used as one of the water sources for the system, the entire city would need to be torn up in order to install the system. The cost associated with the design, construction, additional water sources for a secondary water system is cost prohibitive. A secondary system would also not provide redundancy or address the arsenic in the existing well.

2.4.4 Water Conservation

The state of Utah is encouraging water conservation and has a goal to reduce per capita water use by at least 25 percent by the year 2025. It would reduce the per person water use or gallons per capita per day (gpcd) to a more sustainable 220 gpcd. The City promotes water conservation, but this would not provide a reliable water supply during drought conditions, provide another water source, or provide a solution for the arsenic issue with the existing well.

2.5 Minimization Measures Incorporated into the Proposed Action

The following minimization measures, along with other measures listed under each resource in Chapter 3 and Chapter 4 have been incorporated into the Proposed Action to lessen the potential adverse effects.

- All land surface disturbances will be confined to areas previously disturbed, including: pipeline alignments, existing roads, agricultural farmland, and staging areas adjacent to the Project area.

- Stockpiling of materials will be limited to those areas approved and cleared in advance.

- The City will require the contractor to be responsible during construction for safety measures, noise and dust control, and air and water pollution.

- Project features will be located to avoid riparian areas and historic features.

Chapter 3 Affected Environment and Environmental Consequences

3.1 Introduction

This chapter describes the environment that could be affected by the Proposed Action. These impacts are discussed under the following resource issues:

- Geology and Soils Resources
- Visual Resources
- Cultural Resources
- Paleontological Resources
- Wilderness and Wild and Scenic Rivers
- Hydrology
- Water Quality
- System Operations
- Health, Safety, Air Quality, and Noise
- Prime and Unique Farmlands
- Floodplains
- Wetlands, Riparian, Noxious Weeds, and Existing Vegetation
- Fish and Wildlife Resources
- Threatened, Endangered, and Sensitive Species
- Recreation
- Socioeconomics
- Access and Transportation
- Water Rights
- Indian Trust Assets
- Environmental Justice
- Cumulative Effects

The present condition or characteristics of each resource are discussed first, followed by a discussion of the predicted impacts caused by the Proposed Action. The environmental effects are summarized in Section 3-7.

Implementing minimization measures would ensure impacts are minimal and short-term. Chapter 3 presents the impact analysis for resources after minimization measures and Best Management Practices (BMP) have been successfully implemented.

3.2 Resources Considered and Eliminated from Further Analysis

The following resources were considered but eliminated from further analysis because they did not occur in the Project area or because their effect is so minor (negligible) that it was discounted.

Table 3-1 identifies the resources that have been eliminated from further analysis. Impacts to these resources were considered, but not analyzed in detail, because they were determined to not be affected directly, indirectly, or cumulatively by the No Action or Proposed Action Alternatives.

Table 3-1
Resources Eliminated from Further Analysis

Resource	Rationale for Elimination from Further Analysis
Visual Resources	The changes associated with the Proposed Project would be minor and are similar to the existing visual resources. All Project features other than the wellhouse would be buried.
Paleontological Resources	Consultation with the State Paleontologist indicates there are no paleontological localities recorded within the Project area and that the alluvial deposits exposed along the Project right-of-way have a low potential for yielding significant fossil localities. The letter is included in Appendix B.
Wilderness Areas and Wild and Scenic Rivers	There are no designated Wilderness Areas or Wild and Scenic Rivers within the Proposed Project; Wilderness Areas and Wild and Scenic Rivers would not be affected by implementing the No Action or Proposed Action Alternatives.
Hydrology	Groundwater is the water source for the proposed Project. There would be little to no effect on groundwater supply or recharge and thus no effect to other wells due to large distances between wells (> 1000 ft), completion of wells in different aquifers, or both.

Health, Safety, Air Quality, Noise	The Project is located in an attainment area as defined under the Clean Air Act, which requires the EPA to set National Ambient Air Quality Standards (NAAQS) for airborne pollutants considered damaging to public health and the environment. Attainment designation refers to areas that do not exceed the NAAQS. Negligible or no effects to air quality or noise would be expected long-term by implementing the No Action or Proposed Action Alternatives. No long term affects due to the Proposed Project would be anticipated to the air quality or noise. The BMP would be followed to mitigate for temporary impact on air quality due to construction related activities as discussed in Chapter 4. Noise from construction would be consistent with other machinery used in agricultural settings.
Prime and Unique Farmlands	No Prime or Unique Farmland would be within the Project area. There is farmland of statewide importance in and around Ephraim. There may be minimal farmland that would be lost under the Proposed Action Alternative for the proposed well, as well as farmland temporarily disturbed for the connecting pipelines.
Floodplains	No flood plains would be within the Project boundary. The ephemeral stream that crosses 400 West and 300 North in a culvert acts as an irrigation ditch when water is diverted into it, which is unusual.
Wetlands, Noxious Weeds, Existing Vegetation	The U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) does not have any wetlands identified within the Project area. The existing vegetation is agricultural lands along the roadways and wild grasses. It is not anticipated that noxious weeds would be an issue as the surrounding area is existing roads and agricultural lands. Farmers control the weeds to protect their lands. Nearly all impacted land is existing roadway that would not support vegetation growth. No riparian areas would be disturbed as part of the proposed Project.
Fish and Wildlife Resources	The Project would not be located on a waterway and would be located in town. There is transitory or marginal habitat for species and all the lands have been previously disturbed by construction, agriculture or existing structures.

Threatened, Endangered, and Sensitive Species	The IPAC report identified the Jones Cycladenia as a threatened plant. It occurs in southern Utah and northern Arizona between 4,390 to 6,000 feet elevation in plant communities of mixed desert scrub, juniper, or wild buckwheat Mormon tea. This habitat does not occur within the Project area. No threatened, endangered, or sensitive species would be within a 1/2-miles radius of the Project area. Although there are records of occurrence for the Bonneville cutthroat trout within a 2-mile radius, this proposed Project would not impact any waterbodies. Appendix B has the Department of Natural Resources letter regarding species of concern.
Recreation	No recreation sources would be part of this Project.
Access and Transportation	The lands that would be temporarily impacted by the proposed Project have been previously disturbed. There would be minor and temporary effects. The interest of public safety is important and traffic control would be utilized to minimize any temporary impacts during construction. Staging areas would be easily accessible as they would be adjacent to the roadways.
Water Rights	Ephraim City owns numerous water rights for their culinary system. Recently, Ephraim City purchased nearly 328 acre-feet of groundwater for the proposed well location. This and several of the water rights would require change applications to move the point of diversion to the proposed well location. Change applications are being processed with the Division of Water Rights to include the proposed well location. Water Rights involved are 65-918, 65-1077, 65-3471, 65-3875, and a38517.

3.3 Affected Environment and Environmental Consequences

This section describes the affected environment (baseline conditions) and environmental consequences (impacts as a result of the Proposed Action) on the quality of the human environment that could be impacted by construction and operation of the Proposed Action, as described in Chapter 2. The human environment is defined in this study as all of the environmental resources, including social and economic conditions, occurring in the impact area of influence.

3.3.1 Geology and Soils Resources

Ephraim is located within Sanpete Valley, which is a north-south trending, Y-shaped valley bordered on the east by the Wasatch Plateau, with elevations reaching more than 11,000 feet, and on the west by the San Pitch Mountains, which reach a maximum elevation of about 10,000 feet. Situated in the central eastern part of the valley, two canyons, Willow and Ephraim Creek Canyon dissect the Wasatch Plateau. These canyons provide abundant sediments in

alluvial fan deposits that form part of the valley-fill aquifer. The valley floor is composed mostly of finer grained sand, silt, and clay deposits formed by fluvial/floodplain deposits. These soils are ideal for agricultural lands which surround the Project area.

A feature of the Wasatch Plateau is the westward dipping rocks which abruptly steepen to form the Wasatch monocline as seen in Ephraim Canyon, which consists of sedimentary rocks, sandstone, mudstone, and limestone. Bedrock exposed in the area includes the North Horn, Green River, Colton, and Flagstaff Formations.

A number of factors related to the physical properties of the slope material and subsequent history of erosion and weathering cause slope failures. Slope instability in the canyons can be created by shallow bedrock combined with steep slopes, creep (which is the slow downslope movement of soil and rock debris), removal of lateral and/or underlying support by erosion, and natural slope loading including precipitation, soil saturation near seeps and springs. The North Horn Formation, which is comprised primarily of lacustrine shale with limestone and fluvial sand interbeds, has had the greatest number of slope failures on slopes of 30 percent or greater. Slope failures are common in areas underlain by shale bedrock, especially when steep slopes are present as are common in Ephraim Canyon.

A test well was drilled in July 2018 to 330 feet in depth. Soils present in the first 115 feet include clay, silt, sand, and fine to medium gravels. Gravel, from small to medium to coarse, was present from 115 to 210-feet in depth. Sand was present from 155 to 235-feet. A gray clay layer was present from 210 to 235-feet. A red shale layer was present from 235 to 290-feet. Tan and red sandstone was present from 290 to 320-feet. The final 10-foot layer was red and gray shale. These soil types result in a high-yielding well. The Well Driller's Report is included in Appendix B.

3.3.1.1 No Action

Under the No Action, the Project would not be built. This would have no effect on geology and soils.

3.3.1.2 Proposed Action

The Proposed Action Alternative would have temporary surface soil impacts during construction. Construction erosion and sediment controls would serve to minimize these impacts. As a requirement of the Utah Pollutant Discharge Elimination System UPDES permit for construction activities, a Storm Water Pollution Prevention Plan (SWPPP) would be developed and adhered to by the construction contractor. No unique geologic formations would be impacted by this Project. In most cases disturbed soils would be replaced after construction.

The Project is not located in Ephraim Canyon, therefore eliminating potential to impact old landslides or trigger new ones. However, the potential impact of

landslides on the City's existing water conveyance facilities in the canyon justifies the need for the Project to provide a redundant source of drinking water.

3.3.2 Cultural Resources

Cultural resources are defined as physical or other expressions of human activity or occupation that are over 50 years in age. Such resources include culturally significant landscapes, prehistoric and historic archaeological sites as well as isolated artifacts or features, traditional cultural properties, Native American and other sacred places, and artifacts and documents of cultural and historic significance.

Section 106 of the NHPA, mandates that Reclamation take into account the potential effects of a proposed Federal undertaking on historic properties. Historic properties are defined as any prehistoric or historic district, site, building, structure, or object included in, or eligible for, inclusion in the National Register of Historic Places (NRHP). Potential effects of the described alternatives on historic properties are the primary focus of this analysis.

The affected environment for cultural resources is identified as the APE, in compliance with the regulations to Section 106 of the NHPA (36 CFR 800.16). The APE is defined as the geographic area within which federal actions may directly or indirectly cause alterations in the character or use of historic properties. The APE for this Proposed Action includes the area that could be physically affected by any of the proposed Project alternatives (the maximum limit of disturbance).

A Class I literature review and a Class III cultural resource inventory were completed for the APE, by Bighorn Archaeological Consultants (Bighorn). In accordance with 36 CFR 800.4, any sites identified in the APE were evaluated for significance in terms of NRHP eligibility. The significance criteria applied to evaluate cultural resources are defined in 36 CFR 60.4 as follows:

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, association, and

1. that are associated with events that have made a significant contribution to the broad patterns of our history; or
2. that are associated with the lives of persons significant in our past; or
3. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
4. that have yielded, or may be likely to yield, information important in prehistory or history.

A cultural resource inventory was completed by Bighorn in April and October of 2018. Bighorn identified two historical cultural sites within the Project APE and one historical site adjacent to the APE. All three sites were previously recorded but the site records for the two sites that intersect the APE were updated. Site 42SP300, the old Sanpete Valley Railroad, was previously destroyed by past development within the Project area and there is no longer any sign of the feature. Site 42SP621, the route for U.S. Highway 89, which also intersects the Project area, has been previously determined NRHP ineligible with concurrence from the State Historic Preservation Office (SHPO).

3.3.2.1 No Action

Under the No Action Alternative, a continuation of existing management and land use practices would occur. It would include on-going maintenance and repair of existing facilities. There would be no changes to the current conditions.

3.3.2.2 Proposed Action

Under the Proposed Action Alternative, Reclamation determined that there will be No Historic Properties Affected. According to historical maps and documents, a portion of NRHP eligible site 42SP300, the Sanpete Valley Railroad used to intersect the Project APE. Cultural surveys of the APE revealed that 42SP300 has been completely destroyed by past development activities within the APE. Site 42SP621 was previously determined ineligible for the NRHP. The Utah State Historic Preservation Office (Utah SHPO) concurred with Reclamation's determination of effect on January 4, 2019.

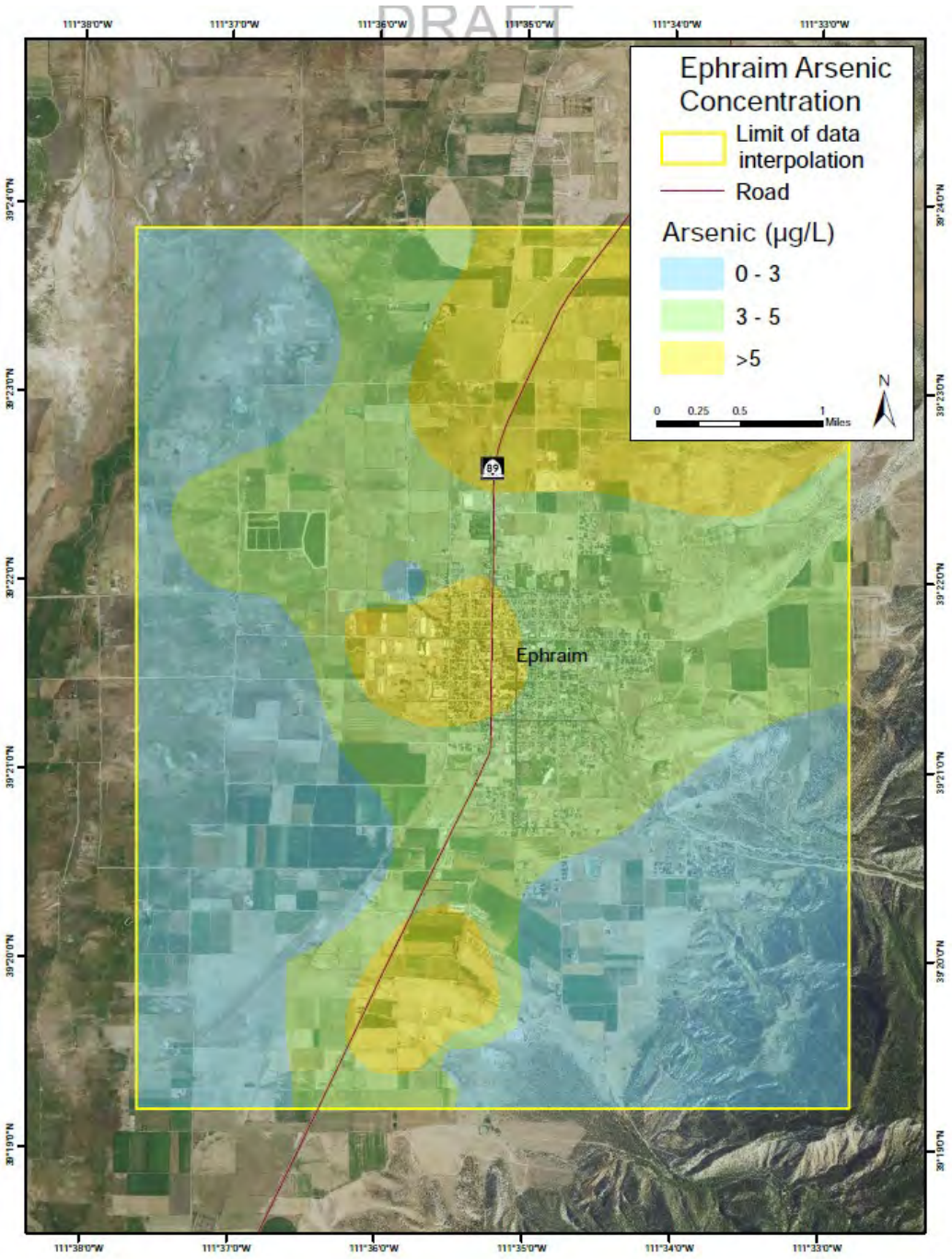
However, construction activities would have the potential to discover previous, unknown, cultural resources and Native American artifacts. In the event of a discovery, construction activities in the vicinity would be suspended. A treatment plan would be developed, and coordination with the Utah SHPO would occur immediately (see environmental commitments in Chapter 4).

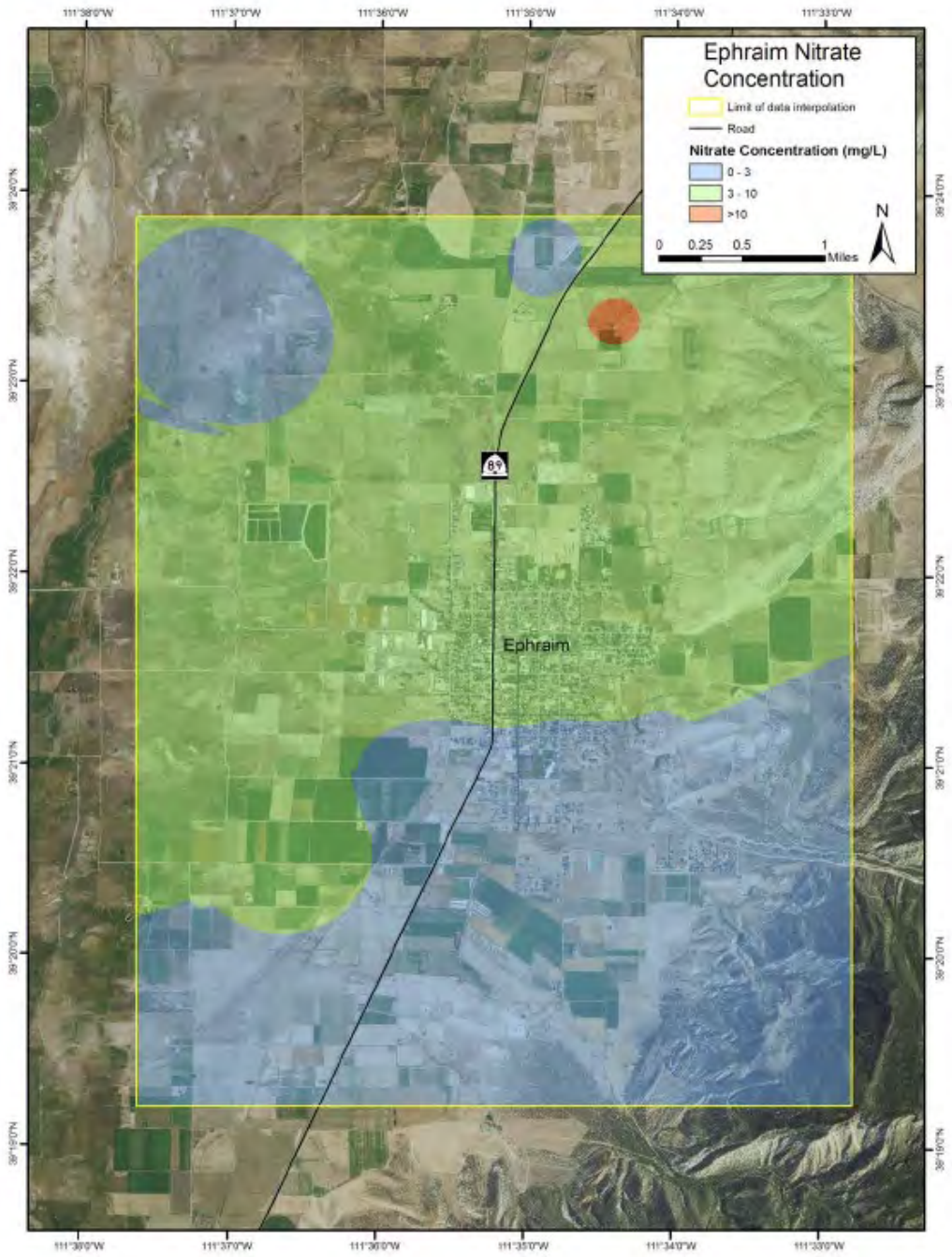
3.3.3 Water Quality

Utah's Rule R309-200-5 for primary drinking water standards lists that the maximum contaminant levels (MCLs) allowed for arsenic is 0.010 milligrams per liter (mg/L) and nitrate is 10 mg/L. Arsenic levels in the existing well fluctuate between 7 and 13 mg/L. Nitrate levels have not been a concern at the existing well. Drinking water standards have also decreased the acceptable amount of arsenic in municipal water sources, bringing the well very close to being unusable.

The 2016 draft report prepared by Utah Geological Survey (USGS) to study the option of aquifer recharge and recovery provided water quality data for the Project area. As part of the study, 20 well sites and 1 spring site were sampled for arsenic and nitrate and 2 sites had additional water quality analysis for general chemistry and dissolved metals. Arsenic concentrations range from non-detect to a significant high of 0.224 mg/L with a median value of 0.0033 mg/L. Nitrate concentrations range from non-detect to 12.3 mg/L with an average concentration

of 3.2 mg/L and a median value of 3.3 mg/L. Nitrate is not an issue in the project area. The following figures, prepared by the UGS, show arsenic and nitrate concentrations in and around Ephraim City.





The water quality of the test well located where the proposed well would be drilled has been tested by Chemtech-Ford Laboratories on September 27, 2018. A copy is included in Appendix B. There are no water quality concerns at the proposed well. Arsenic concentration at the site of the new well was measured at less than 0.001 mg/L.

To help bring the system some redundancy and reduce the concentration of arsenic from the existing well, water from the proposed well would be blended with the existing well water.

3.3.3.1 No Action

Under the No Action Alternative, there would be no changes to the current conditions or additional effects to water quality. The existing well's arsenic levels would remain an issue with no way for corrective measures.

3.3.3.2 Proposed Action

Under the Proposed Action Alternative, the proposed well water would be mixed with the existing well water allowing dilution of arsenic concentrations well below drinking water standards. Water would be mixed prior to introduction into the water system. Flow levels would be determined to ensure that adequate amounts of water from the proposed well were mixed with the existing well water to reduce the concentration of arsenic in the water supply. A water sample collected from the aquifer where the new well will be drilled had an arsenic concentration of less than 0.001 mg/L. Blending 1500 gpm of water from the existing well at 0.013 mg/L with 1200 gpm at 0.001 mg/L water from the new well would produce water with a concentration of 0.0077 mg/L. The pumping rate from the existing well can be reduced to reduce the arsenic level of the blended water even further if necessary.

3.3.4 System Operations

The City's primary water source are the 14 spring sites located in Ephraim Canyon, with several located across the ridge which are transferred into Ephraim Canyon via tunnel. These springs include Beck Spring, Big Springs, Birch-Maple Springs, Black Stump Springs, Curly Hill Springs, Experiment Station Springs, Left Hand Fork Spring, Little Springs, Parry Spring, Riddley Spring, Sawmill Springs, and Twin Spring. Water collected from the springs is conveyed several miles in pipelines to the city water tanks. The water is treated just above the city before reaching the tanks. While the existing well is the backup water source, due to drought conditions in recent years, it has been heavily used.

The distribution system comprises of over 56 miles of pipes ranging from 4 to 14-inches in diameter. Newer sections of the system and system upgrades were constructed using PVC and HDPE pipe. There are some old ductile iron pipe or asbestos concrete pipe remaining in the system. The City has six water tanks for storage between 30,000 and 1.5 million gallons. The total water storage volume in these tanks is 5.28 million gallons or 16.2 acre-feet.

Ephraim City is divided into two pressure zones. The upper pressure zone consists of the southern developments along the south edge of the City limits and some of the east edge of town as shown in Figure 2. This pressure zone is currently only served by the springs. The central zone consists of the remaining parts of the City and those near the city boundary.

3.3.4.1 No Action

Under the No Action Alternative, the culinary water system would continue to operate under its current conditions. The existing well has been pumped more heavily during recent years due to drought to provide the water needed. With

recent issues with the well, this water source is not reliable as a secondary source leaving the City water supply in a precarious situation.

3.3.4.2 Proposed Action

Under the Proposed Action Alternative, the system would remain essentially unchanged. Two exceptions to this would be the blending of the old well water with the proposed well water in the blending system along 400 West. Valves and new pipes would be used to isolate a path between the wells so that the water from the existing well would be blended before being introduced into the system. Another exception is the added flexibility with the new bypass structure, which would allow well water to be pumped up the existing pipeline up the canyon to the upper system. During these times, operation crews would go to the bypass location site to change valves and operate the pump. The upper pressure zone currently can only be serviced with spring water from the canyon.

3.3.5 Socioeconomics

The population of Ephraim City was 7,146 as of July 2017 from the United States Census Bureau. This does not include the student population of Snow College which is approximately 5,000. The median adjusted gross income per household for 2017 was $37,336, which is 18.6 percent lower than the state's median of $45,895. Ephraim exhibits limited overall racial diversity, with 84.6 percent of residents classified as white from 2012-2016 American Community Survey 5-Year estimates and the next largest race being Hispanic at 7.3 percent.

3.3.5.1 No Action

Under the No Action Alternative, there would be no changes to the socioeconomics of the community.

3.3.5.2 Proposed Action

The Proposed Action would improve the overall welfare of the City's residents by providing a more reliable water source without threats of water rationing. The Ephraim City Council has voted to increase water rates to provide funding for this Project. City residents were invited to participate in the meetings where the rate increase was discussed. While the water rates have been increased to cover the cost of the Project, this cost is minor compared to the security of providing safe and reliable water to all residents. Additional rate increases for this project are not anticipated.

3.4 Indian Trust Assets

Indian Trust Assets (ITAs) are legal interests in property held in trust by the U.S. for Federally recognized Indian Tribes or Indian individuals. The Department of the Interior's policy is to recognize and fulfill its legal obligations to identify, protect, and conserve the trust resources of Federally recognized Indian tribes and tribal members, and to consult with tribes on a government-to-government basis whenever plans or actions affect tribal trust resources, trust assets, or tribal safety

(see Departmental Manual, 512 DM 2). Assets can be real property, physical assets, or intangible property rights, such as lands, minerals, hunting and fishing rights, and water rights.

The U.S. has an Indian trust responsibility to protect and maintain rights reserved by or granted to such tribes or individuals by treaties, statutes, and executive orders. These rights are sometimes further interpreted through court decisions and regulations. This trust responsibility requires that all Federal agencies take all actions reasonably necessary to protect trust assets. Reclamation carries out its activities in a manner which protects these assets and avoids adverse impacts when possible. When impacts cannot be avoided, Reclamation would provide appropriate mitigation or compensation. Implementation of the No Action or Proposed Action would have no foreseeable negative impacts on ITAs. Inquiries about ITA concerns were included in the cultural consultation letters for the project that were sent out to the Ute Indian Tribe of the Uintah and Ouray Reservation and the Navajo Nation of Arizona, New Mexico, and Utah on January 4, 2019. No ITA concerns have been identified by the Tribes to date.

3.5 Environmental Justice

Executive Order 12898, established Environmental Justice as a Federal agency priority to ensure that minority and low-income groups are not disproportionately affected by Federal actions. Implementation of the No Action or Proposed Action would not disproportionately (unequally) affect any low-income or minority communities within the Project area. The reason for this is the Project would not involve major facility construction, population relocation, health hazards, hazardous waste, property takings, or substantial economic impacts. This action would therefore have no adverse human health or environmental effects on minority and low-income populations.

3.6 Cumulative Effects

In addition to Project-specific impacts, Reclamation analyzed the potential for significant cumulative impacts to resources affected by the Project and by other past, present, and reasonably foreseeable activities within the watershed. According to the Council on Environmental Quality's regulations for implementing NEPA (50 CFR §1508.7), a “cumulative impact” is an impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. It focuses on whether the Proposed Action, considered together with any known or reasonably foreseeable actions by Reclamation, other Federal or State agencies, or some other entity combined to cause an effect. Based on resource specialists’ review of the Proposed Action, Reclamation has

determined this action would not have a significant adverse cumulative effect on any resources.

3.7 Summary of Environmental Effects

Table 3-2 summarizes environmental effects under the No Action and Proposed Action Alternatives.

Table 3-2
Summary of Environmental Effects

Project Resource	No Action	Proposed Action
Geology and Soils Resources	No Effect	Minor Temporary Impacts
Visual Resources	No Effect	Minor Temporary Impacts
Cultural Resources	No Effect	No Effect
Paleontological Resources	No Effect	No Effect
Wilderness and Wild and Scenic Rivers	No Effect	No Effect
Hydrology	No Effect	No Effect
Water Quality	No Effect	Beneficial Effect
System Operations	No Effect	No Effect
Health, Safety, Air Quality, Noise	Negative Impact	Beneficial Effect
Prime and Unique Farmlands	No Effect	No Effect
Floodplains	No Effect	No Effect
Wetlands, Riparian, Noxious Weeds	No Effect	No Effect
Existing Vegetation	No Effect	Minor Temporary Impacts
Fish and Wildlife Resources	No Effect	No Effect
Threatened, Endangered, and Sensitive Species	No Effect	No Effect
Recreation	No Effect	No Effect
Socioeconomics	No Effect	Minor Effect
Access and Transportation	No Effect	Minor Temporary Impacts
Water Rights	No Effect	No Effect
Indian Trust Assets	No Effect	No Effect
Environmental Justice	No Effect	No Effect
Cumulative Effects	No Effect	No Effect

Chapter 4 Environmental Commitments

Environmental Commitments, along with Minimization Measures in Section 2.5 have been developed to lessen the potential adverse effects of the Proposed Action.

4.1 Environmental Commitments

The following environmental commitments would be implemented as an integral part of the Proposed Action.

1. **Standard Reclamation Best Management Practices (BMP)** - Standard Reclamation BMP would be applied during construction activities to minimize environmental effects and would be implemented by construction forces or included in construction specifications. Such practices or specifications include sections in the present EA on public safety, dust abatement, air pollution, noise abatement, water pollution abatement, waste material disposal, erosion control, archaeological and historical resources, vegetation, fish and wildlife and threatened and endangered species. Excavated material and construction debris would not be wasted in any stream or river channel in flowing waters. This includes material such as grease, oil, joint coating, or any other possible pollutant. Excess materials would be wasted at a Reclamation approved upland site well away from any channel. Construction materials, bedding material, excavation material, etc. would not be stockpiled in riparian, wetland, or water channel areas. Silt fencing would be appropriately installed and left in place until after revegetation became established, at which time the silt fence would then be carefully removed. Machinery would be fueled and properly cleaned of dirt, weeds, organisms, or any other possibly contaminating substances offsite prior to construction.

2. **Additional Analyses** - If the Proposed Action were to change significantly from that described in this EA because of additional or new information, or if other spoil, or work areas beyond those outlined in this analysis are required outside the defined Project construction area, additional environmental analyses may be necessary.

3. **Construction Restrictions** - Construction and staging activities would be confined to previously disturbed areas, to the extent practicable.

4. **Public Access** - Construction sites would be closed to public access. The City would coordinate with contractor's personnel, as necessary, to ensure public safety.

5. **UPDES Permit** - A UPDES Permit would be required from the State of Utah before any discharges of water, if such water is to be discharged as a point source into a regulated water body. Appropriate measures would be taken to ensure that construction related sediments would not enter the stream during or after construction. Settlement ponds and intercepting ditches for capturing sediments would be constructed, and the sediment and other contents collected would be hauled off the site for appropriate disposal upon completion of the Project.

6. **Air Quality** - BMP would be followed to mitigate for temporary impact on air quality due to construction related activities. These may include the application of dust suppressants and watering to control fugitive dust; minimizing the extent of disturbed surface; during times of high wind, restricting earthwork activities; and limiting the use of, and speeds on, unimproved road surfaces.

7. **Cultural Resources** - If any cultural resources other than those previously identified in this document are discovered on the surface or below surface during Project construction, Reclamation's Provo Area Office archeologist shall be notified and construction in the area of the inadvertent discovery will cease until an assessment of the resource and recommendations for further work can be made by a professional archeologist.

8. **Human Remains** - Any person who knows or has reason to know that he/she has inadvertently discovered possible human remains on Federal land or during the course of implementation of a project that uses Reclamation-issued Federal funds, he/she must provide immediate telephone notification of the discovery to Reclamation's Provo Area Office archaeologist. Work would stop until the proper authorities are able to assess the situation onsite. This action would promptly be followed by written confirmation to the responsible Federal agency official, with respect to Federal lands. SHPO and interested Native American Tribal representatives would be promptly notified. Consultation would begin immediately. This requirement is prescribed under the Native American Graves Protection and Repatriation Act (43 CFR Part 10) and the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470).

9. **Paleontological Resources** - Should vertebrate fossils be encountered by the proponent during ground disturbing actions, construction would

be suspended until a qualified paleontologist could be contacted to assess the find.

10. **Vegetation -** Design and treatment activities would ensure that vegetation would be protected with no long term adverse effects. Staging areas would be in previously disturbed areas to the extent practicable.

11. **Invasive Species -** Appropriate steps would be taken to prevent the spread of, and to otherwise control, undesirable plants and animals within areas affected by construction activities. Equipment used for the Project would be inspected for reproductive and vegetative parts, foreign soil, mud, or other debris that may cause the spread of weeds, invasive species, and other pests. Such material would be removed before moving vehicles and equipment. Upon the completion of work, decontamination would be performed within the work area before the vehicle and/or equipment are removed from the Project site, if work was conducted in an area infested with noxious weeds.

    The City would make periodic inspections following revegetation of disturbed areas to locate and control populations of noxious weeds, if present. All seed used for restoration would be certified "noxious weed free" before use. If needed, the County Weed Control Department could be contacted to provide services to control the spread of noxious weeds.

12. **Raptor Guidelines** - The City would adhere to the U.S. Fish and Wildlife Service (USFWS) Raptor Guidelines by placing seasonal and spatial "no construction" buffers, along with daily timing restrictions around all active raptor nests or winter roosting bald eagles. If unknown nests were located during construction, the same guidelines would be implemented.

Chapter 5 Consultation and Coordination

5.1 Introduction

This chapter details other consultation and coordination between Reclamation and other Federal, State, and local Government Agencies, Native American Tribes, and the public during the preparation of this EA. Compliance with NEPA is a Federal responsibility that involves the participation of all these entities in the planning process. The NEPA requires full disclosure about major actions taken by Federal agencies and accompanying alternatives, impacts, and potential mitigation of impacts.

5.2 Public Involvement

Reclamation's public involvement process presents the public with opportunities to obtain information about a given Project and allows all interested parties to participate in the Project through written comments. The key objective is to create and maintain a well-informed, active public that assists decision-makers throughout the process, culminating in the implementation of an alternative.

A copy of the Draft EA will be sent to interested agencies and key stakeholders for review. Any comments received during the public comment period will be addressed and integrated into the EA as appropriate. Comments will be in the Project administrative record and available for public review.

5.3 Native American Consultation

Reclamation conducted Native American consultation throughout the public involvement process. Tribal consultation letters for the draft EA will be sent out to the Ute Indian Tribe of the Uintah and Ouray Reservation and the Navajo Nation of Arizona, New Mexico, and Utah. A cultural resources consultation letter with a determination of No Historic Properties Affected and a copy of the Class III Cultural Resource Inventory Report were sent to the above Tribes on January 4, 2019. All cultural consultation was conducted in compliance with 36 CFR 800.2(c)(2) on a government-to-government basis. Through this effort, each Tribe is given a reasonable opportunity to identify any concerns about historic properties; to advise on the identification and evaluation of ITAs and historic properties, including those of traditional religious and cultural importance; to express their views on the effects of the Proposed Action on such properties; and

to participate in the resolution of adverse effects. Reclamation is awaiting comments and has received none from the Tribes to date.

5.4 Utah Geological Survey

The Utah Geological Survey was contacted on November 5, 2018. The assistant to the State Paleontologist reviewed the Project area and determined that there are no paleontological localities recorded and it would have a low probability for paleontological resources.

5.5 Utah State Historic Preservation Office

A copy of the Class III Cultural Resource Inventory Report and a determination of No Historic Properties Affected for the Proposed Action were submitted to the SHPO on January 3, 2019. The SHPO concurred with Reclamation's determination of effect on January 4, 2019.

5.6 U.S. Fish and Wildlife Service

The USFWS was contacted on October 31, 2018, and an IPaC report was obtained for the APE.

5.7 Utah Division of Wildlife Resources

The UDWR was contacted on November 1, 2018. A response letter was received on November 14, 2018 with information on the State's Special Status Species.

Chapter 6 Preparers

The following is a list of preparers who participated in the development of the EA. They include environmental summary preparers, Reclamation team members, and Federal, State and District members.

Table 6-1
Environmental Summary Preparers

Name	Title	Company
Ms. Monique Robbins	Senior Engineer, Writing, Editing	Franson Civil Engineers, Inc.
Mr. Layne Jensen	Project Manager	Franson Civil Engineers, Inc.
Mr. Jon Baxter	Archeologist	Bighorn Archeological Consultants, LLC

Table 6-2
Reclamation Team Members

Name	Title	Resource
Mr. Jared Baxter	Fish and Wildlife Biologist, Reclamation Provo Area Office	Biological Resources
Mr. Rick Baxter	Water, Environmental, and Lands Division Manager	Document Oversight
Mr. Peter Crookston	Environmental Group Chief, Reclamation Provo Area Office	NEPA Oversight
Mr. Dave Nielsen	Geologist	Geology and Soils
Mr. Dale Hamilton	Resource Management Division Manager	Health, Safety, Air Quality, and Noise
Mr. Darrick Whipple	Economist, Reclamation Provo Area Office	Socioeconomics
Ms. Linda Morrey	Secretary	Writing, Editing
Mr. John Mann	Civil Engineer, Reclamation Provo Area Office	Water Rights
Ms. Carley Smith	Archaeologist, Reclamation Provo Area Office	Cultural Resources, Paleontological Resources, Indian Trust Assets

Table 6-3
Federal, State or District Members

Name	Title	Company
Mr. Bryan Kimball	Community Development Director/City Engineer	Ephraim City
Ms. Sarah Lindsey	Senior GIS Analysist	Utah Division of Wildlife Resources
Ms. Martha Hayden	Assistant State Paleontologist	Utah Geological Survey

Chapter 7 Abbreviations

AIANNH	American Indian/Alaska Native/Native Hawaiian
APE	Area of Potential Effect
Bighorn	Bighorn Archaeological Consultants
BMP	Best Management Practices
cfs	Cubic Feet per Second
City	Ephraim City
CFR	Code of Federal Regulations
DWQ	Utah Division of Water Quality
EA	Environmental Assessment
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
gpm	Gallons per Minute
gpcd	Gallons per Capita per Day
HDPE	High-density Polyethylene
IPaC	Information for Planning and Conservation
ITAs	Indian Trust Assets
MCLs	Maximum Contaminant Levels
mg/L	Milligrams Per Liter
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
O&M	Operation and Maintenance
Project	Ephraim City Drought Resiliency Project
psi	Pounds per Square Inch
PVC	Polyvinyl Chloride
Reclamation	Bureau of Reclamation
SHPO	Utah State Historic Preservation Office
SOPs	Standard Operating Procedures
SWPPP	Storm Water Pollution Prevention Plan
U.S.	United States
UAC	Utah Administrative Code
UDWR	Utah Division of Wildlife Resources
UGS	Utah Geological Survey

UPDES	Utah Pollutant Discharge Elimination System
USFWS	U.S. Fish and Wildlife Service

Chapter 8 References

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Chapter 9 Appendices

Appendix A - Preliminary Evaluation Report